

## Spiders of the Family Zodariidae (Araneae) from Dambri, Lam Dong Province, Southern Vietnam

Hirotsugu Ono

Department of Zoology, National Science Museum, 3–23–1 Hyakunin-cho,  
Shinjuku-ku, Tokyo, 169–0073 Japan  
e-mail: ono@kahaku.go.jp

**Abstract** Zodariid spiders of the genera *Asceua* Thorell, 1887, *Mallinella* Strand, 1906, and *Akyttara* Jocqué, 1987, obtained from Dambri in Lam Dong Province, southern Vietnam, are reported. Four new species are described under the names, *Asceua piperata*, *Mallinella momoina*, *Mallinella dambrica* and *Akyttara odorocci*. The holotype (female) of *Asceua torquata* (Simon, 1909) described from Hanoi, northern Vietnam, was re-examined and illustrated for a comparison with the new species. Both the *Asceua* species closely resemble each other in the shape of epigynum. *Mallinella dambrica* seems to be related to *M. klossi* (Hogg, 1922) known from Lang Biang, about 100 km apart from Dambri in a northeastern direction, while *M. momoina* shows peculiar characters in the genus, especially those of the structure of female genitalia. The genus *Akyttara* was discovered in Asia for the first time.

**Key words:** Taxonomy, Araneae, Zodariidae, new species, Vietnam

### Introduction

Through entomological expeditions to Vietnam (1995–2003) made by the National Science Museum, Tokyo (NSMT), in partnership with the Institute of Ecology and Biological Resources (IEBR), Hanoi, many specimens of spiders were obtained from various places in the country for taxonomical studies. On the basis of this material two reports were published on the family Zodariidae (Ono, 2003, 2004), including seven species of the genus *Mallinella* Strand, 1906, described as new. Of these, five species, *Mallinella paradisea* Ono, 2003 (Mt. Phang Si Pang in Lai Chau Province), *M. nomurai* Ono, 2003, and *M. vietnamensis* Ono, 2003 (Tam Dao in Vinh Phu Province), and *M. flammea* Ono, 2004, and *M. septemmaculata* Ono, 2004, (Cuc Phuong National Park in Ninh Binh Province), were recorded from northern Vietnam, while the other two species, *M. karubei* Ono, 2003, and *M. thinhi* Ono, 2003, were described from Bach Ma National Park in Thua Thien Hue Province situated

in the central part of the country.

Acting as a third part of the series of study, the present paper deals with zodariid spiders collected from Dambri (11°30'N, 108°E, ca. 800 m in elevation), Lam Dong Province in the southern part of Vietnam. Although Dambri (Dam B'ri) is a holiday resort in a mountainous area used for tea production, fortunately like an oasis in the desert, some primary forests have been preserved around a waterfall and build a rich spider fauna including a primitive species of Mesothelae, *Songthela australis*, recently discovered (Ono, 2002).

Four new species are recognized in the genera *Asceua* Thorell, 1887, *Mallinella*, Strand, 1906, and *Akyttara*, Jocqué, 1987. A new species of *Akyttara* is the most interesting one in the four species, serving as the first representative of the genus in Asia. For the determination of the new species of *Asceua*, I examined the type specimen of *Asceua torquata* described by Simon (1909) from Hanoi, northern Vietnam, at the Muséum National d'Histoire Naturelle, Paris (MNHN).

Two new species of *Mallinella*, a common zodariid genus in Asia, were also found in the material. Descriptions of the new species will be given in the following pages.

The abbreviations of morphological terms used in the present paper are as follows: ALE, anterior lateral eye; AME, anterior median eye; PLE, posterior lateral eye; PME, posterior median eye. Type specimens of the new species described herein are for the moment preserved in the collection of the Department of Zoology, National Science Museum, Tokyo, in the joint ownership between NSMT and IEBR.

Before going further, I wish to express my hearty thanks to the following persons for their various aid in my field research at Dambri in the periods of May–June, 2002 and April–May, 2003, and in preparing the manuscript of this paper: Dr. Ta Huy Thinh and Mr. Hoang Vu Tru (IEBR), Dr. Satoshi Shinonaga (Tokyo), Dr. Yutaka Arita (Meijo University), Dr. Haruki Karube (Kanagawa Prefectural Museum), the late Dr. Jaqueline Heultault and Dr. Christine Rollard (MNHN, Paris), Dr. Mamoru Owada, Dr. Shuhei Nomura and Ms. Yoshimi Watanabe (NSMT). This study was supported in part by the Grants-in-aid No. 13575015 and No. 16540431 of the Monbukagakusho Research Programs, Japan.

## Descriptions of New Species

### Family *Zodariidae*

#### *Asceua piperata* sp. nov.

(Figs. 1–5)

**Diagnosis.** This new species seems to be related to *Asceua torquata* (Simon, 1909) described from Hanoi, northern Vietnam. The type specimen of *Asceua torquata* deposited in the Muséum National d'Histoire Naturelle, Paris was re-examined and herewith illustrated (Figs. 6–7). Both the Vietnamese species are similar to each other in the structure of female genitalia, but the new species can be distinguished from the known one by the markings on opisthosoma (cf. Figs. 1 and 6) and the details of female genitalia (cf. Figs. 3–4 and 7).

**Type specimen.** Female holotype from Dambri 800 m in elevation, Lam Dong Province, southern Vietnam, from 29–V to 1–VI–2002, by flight intercept trapping in forest, S. Nomura leg. (IEBR and NSMT-Ar 5476).

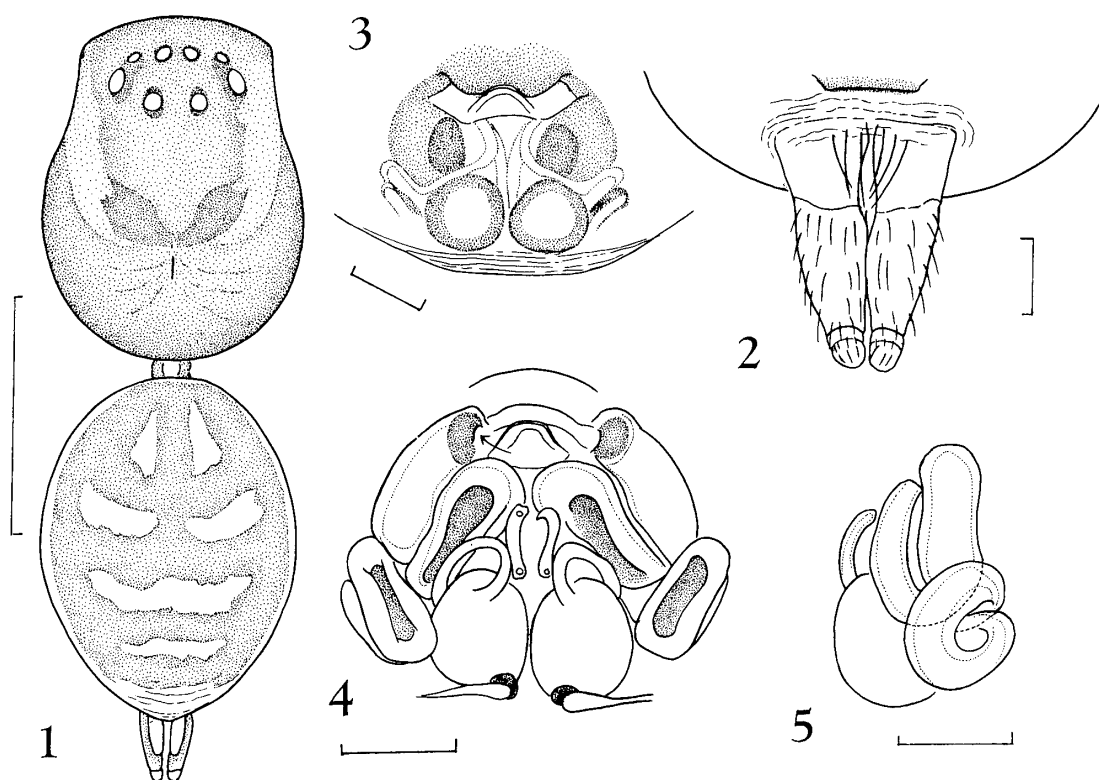
**Comparative material.** *Storena (Asceua) torquata* Simon, 1909 (Figs. 6–7), female holotype from Hanoi, Tonkin, Vauloger leg. (MNHN 1564): body length 3.25 mm.

**Description** (based on the female holotype; male unknown). Measurement: Body length 2.96 mm; prosoma length 1.44 mm, width 1.04 mm; opisthosoma length 1.41 mm, width 1.04 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: I 4.39 mm (1.19+0.38+1.00+1.24+0.58), II 3.41 mm (0.90+0.38+0.74+0.88+0.51), III 3.67 mm (0.98+0.39+0.75+1.05+0.50), IV 4.77 mm (1.25+0.41+1.01+1.50+0.60).

**Prosoma.** Carapace longer than wide (length/width 1.38), with a median furrow. Eyes: anterior eye row slightly recurved, posterior row procurved in dorsal view, PLE>PME>AME>ALE (10:7.5:6:3.5 in size), PLE the largest, AME=AME–ALE, PME–PME=PME–PLE, clypeus not much longer than the anterior width of median ocular area (3:2), median ocular area longer than wide (length/width 1.08), wider behind than in front (anterior width/posterior width 0.67). Labium triangular, as long as wide, sternum slightly longer than wide (length/width 1.15), its lateral margin with small, pointed extensions fitting in coxal concavities of legs. Chelicera without teeth on margins of fang furrow, fang very short. Palps thick and short. Legs with short spines on femora I–IV (I 1–1–0, II–IV 1–1–1) and on tibiae III–IV (1ap), long trichobothria on all tibiae, and ventral hair tufts in the apical part of all metatarsi; upper claws of legs with 6–7 teeth.

Opisthosoma oval, longer than wide (length/width 1.35). Posterior spinnerets shorter than the anterior ones and not visible in ventral view (Fig. 2).

Female genitalia (Figs. 3–5): Opening part situated in the anterior part of epigynum, epigynal



Figs. 1–5. *Asceua piperata* Ono, sp. nov., female holotype (NSMT-Ar 5476). — 1, Pro- and opisthosomata, dorsal view; 2, spinnerets, ventral view; 3, epigynum, ventral view; 4, female genitalia, dorsal view; 5, left intromittent canal and spermatheca, lateral view. [Scales: Fig. 1, 1 mm; Figs. 2–5, 0.1 mm.]

plate with a central guide pocket weakly sclerotized; spermathecae large and globular, with very long and winding, tubular intromittent canals.

**Coloration and markings (Fig. 1).** The thoracic part of carapace chestnut brown, shiny, and the cephalic part yellowish brown with a bow tie like black marking. Chelicera chestnut brown, maxillae yellowish white, labium and sternum light brown, palps and legs yellow, with black rings in the distal part of femora, the distal part of patella, proximal and distal parts of tibiae, and with black stripes in the ventral side of femora and metatarsi. Opisthosoma dorsally black, with white spots, ventrally white, spinnerets yellowish brown.

**Distribution.** Southern Vietnam (at present known only from the type locality).

**Remark.** This spider is named with a Latin word meaning pepper derived from its small body size like a seed of Japanese pepper, *Zanthoxylum piperitum*.

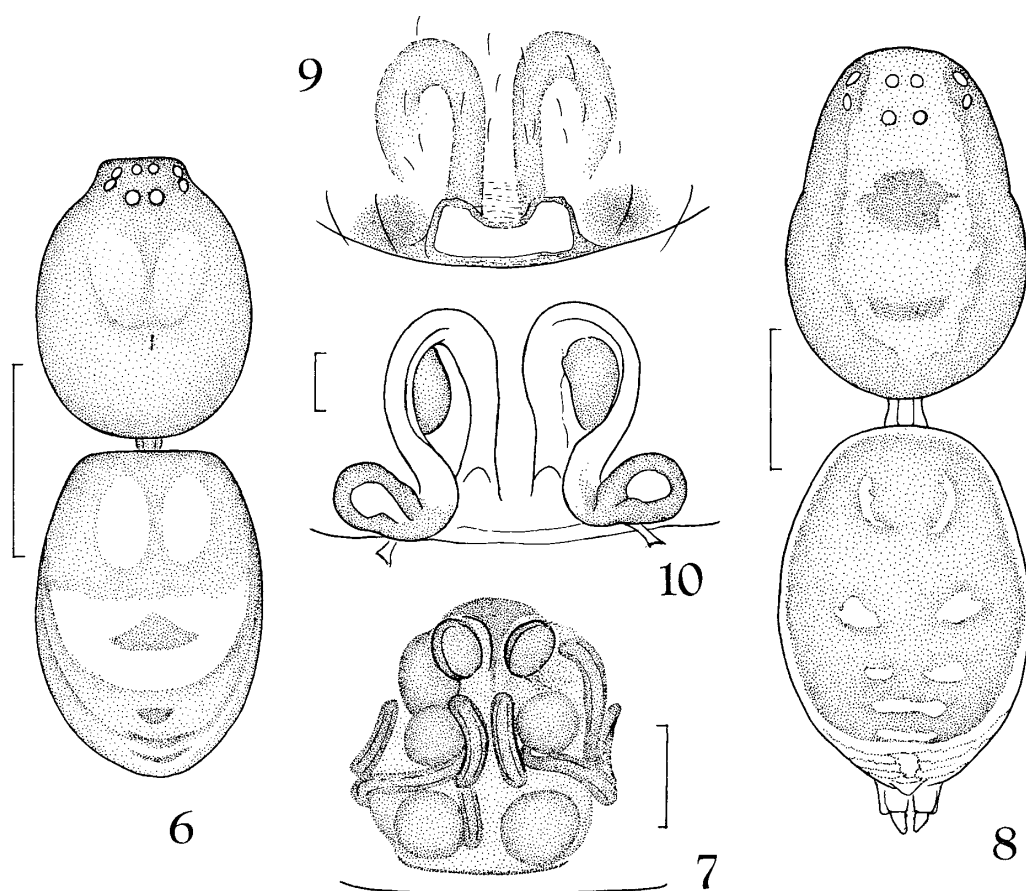
### *Mallinella momoina* sp. nov.

(Figs. 8–10)

**Diagnosis.** This new species shows unique characters of the structure of female genitalia in known zodariids, for instance, absence of epigynal plate in the opening part, tubular intromittent canals with enlarged gland, and small and reniform spermathecae. However, I put this species in the genus *Mallinella*, *sensu lato*, because the openings of genitalia are situated in the posterior part of epigynum and intromittent canals are not so long as in the next genus *Asceua*. The general appearance and coloration of the new species resemble those of *Mallinella flammea* Ono, 2004, described from Ninh Binh Province, northern Vietnam.

**Type specimen.** Female holotype from Dambri 800 m in elevation, Lam Dong Province, southern Vietnam, 1–VIII–2001, by sifting, S. Nomura leg. (IEBR and NSMT-Ar 5480).

**Description** (based on the female holotype;



Figs. 6–7. *Asceua torquata* (Simon, 1909), female holotype (MNHN 1564); 8–10, *Mallinella momoina* Ono, sp. nov., female holotype (NSMT-Ar 5480). — 6, 8, Pro- and opisthosomata, dorsal view; 7, 9, epigyna, ventral view; 10, female genitalia, dorsal view. [Scales: Figs. 6, 8, 1 mm; Figs. 7, 9–10, 0.1 mm.]

male unknown). Measurement: Body length 4.96 mm; prosoma length 2.44 mm, width 1.63 mm; opisthosoma length 2.37 mm, width 1.70 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: I 5.92 mm (1.70+0.67+1.48+1.19+0.88), II 5.07 mm (1.44+0.63+1.11+1.11+0.78), III 4.92 mm (1.37+0.59+0.96+1.26+0.74), IV 6.99 mm (1.85+0.59+1.63+1.92+1.00).

Prosoma. Carapace longer than wide (length/width 1.50), with a median furrow. Eyes: both the eye rows procurved in dorsal view, PLE=ALE>AME=PME (6:6:5:5 in size), AME-AME<AME-ALE (1:3), PME-PME>PME-PLA (2:5), clypeus much longer than the anterior width of median ocular area (14:6), median ocular area longer than wide (length/width 1.14), wider behind than in front (anterior width/posterior width 0.86). Labium triangular, as long as

wide, sternum slightly wider than long (length/width 0.93), its lateral margin with small, pointed extensions fitting in coxal concavities of legs. Chelicera without teeth on margins of fang furrow, fang very short. Palps thick and short. Legs with short spines, ventral hair tufts present in the apical part of all metatarsi, upper claws of legs with 4–5 teeth. Spination of legs: Femora: dorsal I 1–0–0–0, II 1–0–1–0, III–IV 1–1–1, prolateral I 0–0–1; patellae: prolateral III–IV 1; tibiae: prolateral III 1–1, IV 1–0–1, retrolateral III–IV 1, ventral I 2, II–III 1–2–2ap, IV 2–1–2ap; metatarsi: prolateral III–IV 1–1–0–1ap, retrolateral III 0–1–0–1ap, IV 0–1–0–0, ventral I and III 0–2–2ap, II 1–2–2ap, IV 2–2–2ap.

Opisthosoma oval, longer than wide (length/width 1.39). Posterior spinnerets shorter than the anterior ones.

Female genitalia (Figs. 9–10): Opening part

situated in the posterior part of epigynum, epigynal plate absent; spermathecae very small and reniform, with long and tubular intromittent canals.

Coloration and markings (Fig. 8). Carapace shiny dark pink, with indistinct markings at the middle, both the sides dark wine red. Chelicera reddish brown, maxillae and labium yellowish brown, sternum light reddish brown, palps and legs light reddish brown, not annulated. Opisthosoma dorsally black, with white spots, ventrally between epigastric furrow and spinnerets black, marginated with white, spinnerets yellowish brown.

*Distribution.* Southern Vietnam (at present known only from the type locality).

*Remark.* The specific name is made with a Japanese word “momo” which means peach or pink-colored, derived from the color of carapace.

***Mallinella dambrica* sp. nov.**

(Figs. 11–18)

*Diagnosis.* This new species seems to be closely related to *Mallinella klossi* (Hogg, 1922) described from Mt. Lang Biang about 100 km apart from Dambri in a northeastern direction. However, the new species can be distinguished from the latter by the shape of epigynum of female genitalia and the markings on opisthosomal dorsum (cf. Figs. 15–16 and Hogg, 1922, p. 286, fig. 1). *Mallinella klossi* has five pairs of yellowish grey spots on opisthosoma, while *M. dambrica* has three pairs of white spots.

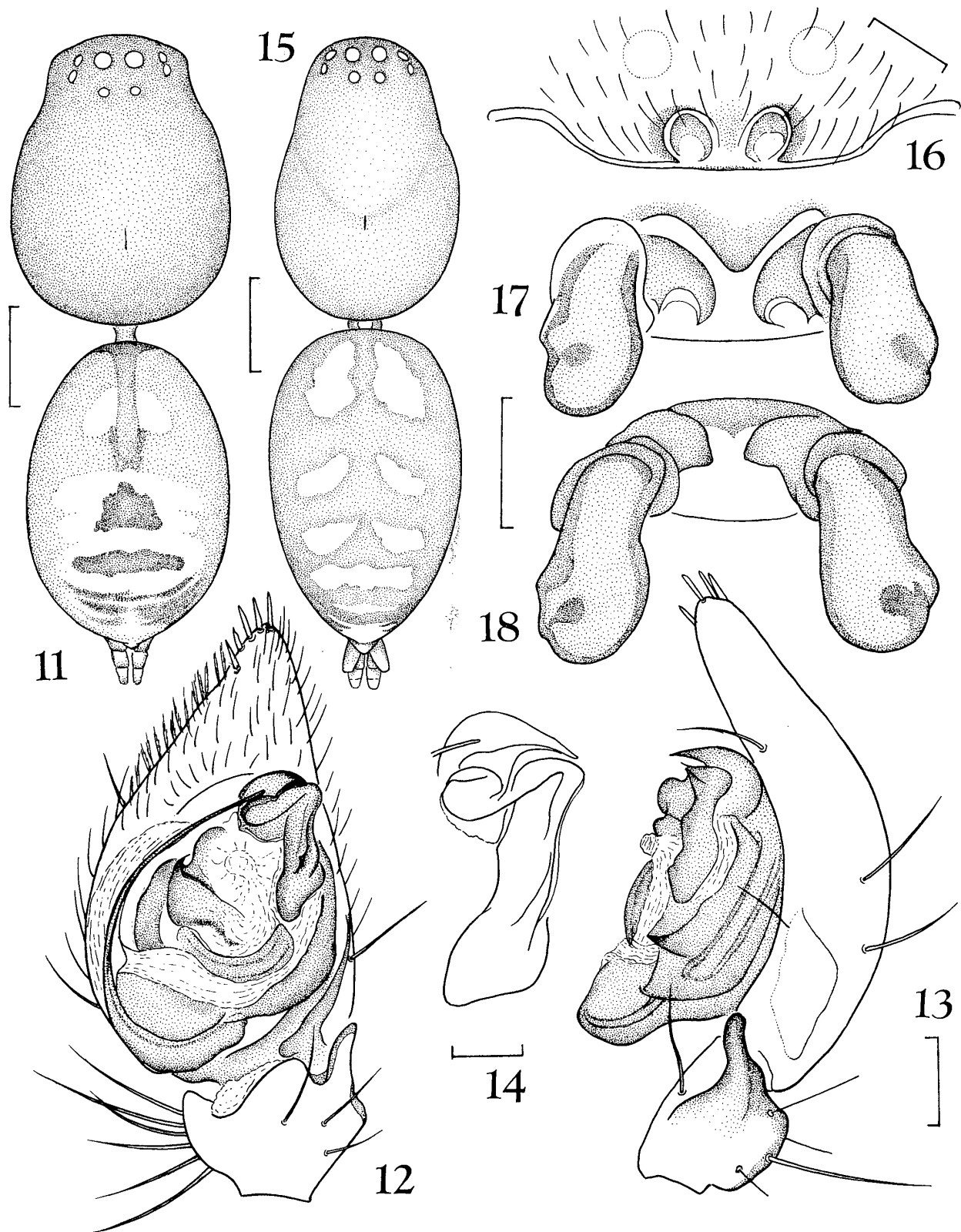
*Type specimens.* Male holotype from Dambri, 800 m in elevation, Lam Dong Province, southern Vietnam, from 29–V to 1–VI–2002, by flight intercept trapping in gloomy broad-leaved forest, S. Nomura leg. (IEBR and NSMT-Ar 5477); one female paratype from same locality in the same period, H. Ono leg. (IEBR and NSMT-Ar 5478).

*Other specimens examined.* Three immature females with the same data as for the holotype (IEBR and NSMT-Ar 5479).

*Description* (based on the male holotype and the female paratype). Measurement: Female:

Body length 6.59 mm; prosoma length 2.89 mm, width 2.15 mm; opisthosoma length 3.41 mm, width 2.22 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: I 9.07 mm (2.07+0.70+2.41+2.19+1.70), II 7.99 mm (2.00+0.70+1.74+2.07+1.48), III 7.40 mm (1.81+0.63+1.63+2.00+1.33), IV 10.44 mm (2.37+0.70+2.30+3.26+1.81). Male: Body length 6.67 mm; prosoma length 3.15 mm, width 2.15 mm; opisthosoma length 3.11 mm, width 2.00 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: I 13.18 mm (3.07+0.81+2.93+3.63+2.74), II 10.18 mm (2.67+0.81+2.07+2.70+1.93), III 9.94 mm (2.59+0.84+2.00+2.81+1.70), IV 13.18 mm (2.96+0.89+2.96+4.15+2.22).

Prosoma. Carapace longer than wide (length/width female 1.34, male 1.46), with a median furrow. Eyes: both the eye rows procurved in dorsal view, AME>ALE>PLE>AME (9:6:5:4.5 in size) in female, AME>PLE>ALE>PME (9:7:6:5 in size) in male, AME the largest in both the sex, AME–AME=AME–ALE, PME–PME<PME–PLE (6:9 in female, 7:11 in male), clypeus much longer than the anterior width of median ocular area (13:10 in female, 17:10 in male), median ocular area wider than long (length/width 0.89 in female, 0.95 in male), wider in front than behind (anterior width/posterior width 1.19 in female, 1.31 in male), Labium triangular, slightly wider than long (length/width 0.87 in female, 0.91 in male), sternum slightly longer than wide in female (length/width 1.04), as long as wide in male, its lateral margin with small, pointed extensions fitting in coxal concavities of legs. Chelicera with a denticle on retromargin of fang furrow, fang very short. Legs with long spines on femora, patella, tibiae and metatarsi as following spination. Female: Femora: dorsal I 1–0–1–1–1, II 1–1–1–1, III 1–0–1–1–1, IV 1–1–1–1–0–1, prolateral I 0–0–1–1–0, II–IV 1–1–1, retro-lateral I 0–1–0–0–0, II–IV 0–1–1; patellae: prolateral II–IV 1, tibiae: prolateral I–III 1–1, IV 1–1–0–1, retrolateral III 1–1, IV 1–1–0–1, ventral I–II 2–2–1–2ap, III–IV 1–1–1–2ap; metatarsi: prolateral II 1, III 1–1–0–1ap, IV 1–1–1–0–1ap, retro-



Figs. 11–18. *Mallinella dambrica* Ono, sp. nov.: 11–14, male holotype (NSMT-Ar 5477); 15–18, female paratype (NSMT-Ar 5478). — 11, 15, Pro- and opisthosomata, dorsal view; 12, palpal organ, ventral view; 13, palpal organ, retrolateral view; 14, median apophysis, ventral view; 16, epigynum, ventral view; 17, female genitalia, dorsal view; 18, female genitalia, posterior view. [Scales: Figs. 11, 15, 1 mm; Figs. 12–13, 16–18, 0.25 mm; Fig. 14, 0.1 mm.]

lateral III–IV 1–1–0–1ap, ventral I–II 2–2–2ap, III–IV 0–2–2–2ap. Male: Femora: dorsal I–III 1–0–1–1–0–1, IV 1–1–1–1–1–1–1, prolateral I 0–1–1–1, II 0–0–1–1, III 1–1–0–0, IV 0–0–0–1, retrolateral I 1, II–III 0–1–1, IV 0–0–1; patellae: prolateral II–IV 1; tibiae: prolateral I–IV 1–1–1, retrolateral III–IV 1–1–1, ventral I–II 2–2–2–2ap, III 2–2–1–2ap, IV 2–1–2–2ap; metatarsi: prolateral II 1, III–IV 1–1–1–1–1ap, retrolateral II 1, III–IV 1–1–1–1–1ap, ventral I–II and IV 1–2–2–2ap, III 2–2–2–2ap. Upper claws of legs with 6–8 teeth.

Male palp (Figs. 12–14): Retrolateral apophysis of tibia digitiform, wide at the base, ventral apophysis indistinct; median apophysis on tegulum large, its distal part twisted (Fig. 9), embolus filiform, without embolic apophysis (Fig. 14).

Opisthosoma oval, longer than wide (length/width female 1.54, male 1.56). Posterior spinnerets shorter than the anterior ones. Male opisthosoma with a sclerotized plate much longer than wide.

Female genitalia (Figs. 16–18): Opening part situated in the posterior part of epigynum, epigynal plate indistinct and both the intromittent orifices clearly separated; spermathecae large and reniform, strongly sclerotized, and with very short intromittent canals.

Coloration and markings (Figs. 11, 15). Female: carapace chestnut brown, lighter at the middle, chelicerae reddish brown, maxillae, labium, sternum and palps yellowish brown, coxae of legs yellow, other segments light yellowish brown; opisthosoma dorsally purplish brown with three pairs of white spots and several bars, ventrally beige with three black stripes, spinnerets yellowish brown. Male: carapace dark, blackish brown, chelicerae brown, maxillae and labium yellowish brown, sternum chestnut brown, palps yellowish brown, femora of legs blackish brown, other segments yellowish brown; opisthosoma dorsally beige, with indistinct white spots and black markings, the dorsal plate light brown, ventrally beige with three black stripes, spinnerets light brown.

*Distribution.* Southern Vietnam (at present

known only from the type locality).

*Remark.* The species name is derived from the type locality.

*Akyttara odorocci* sp. nov.

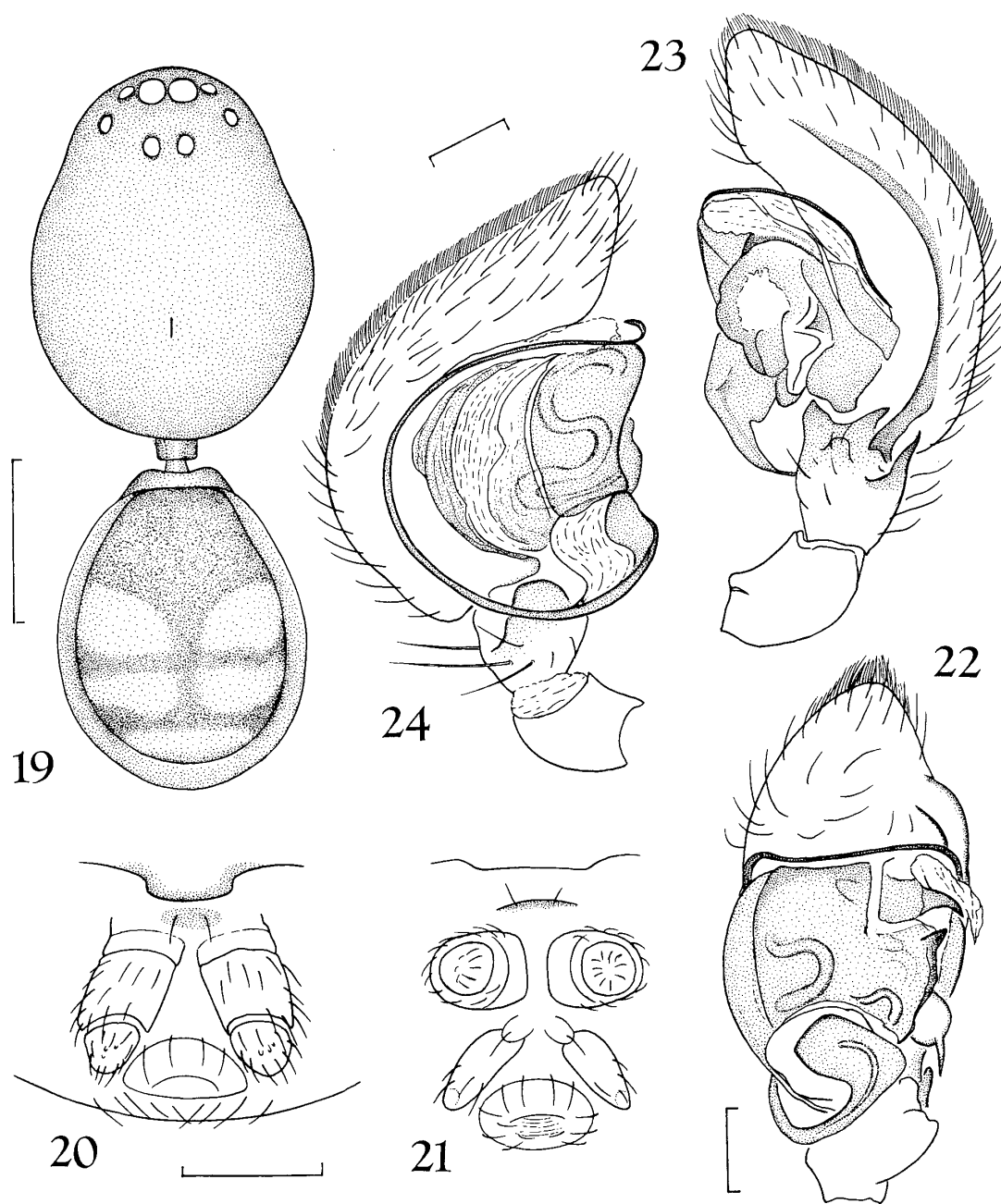
(Figs. 19–24)

*Diagnosis.* Although spiders of the genus *Akyttara* Jocqué, 1987, have been known to be distributed in Africa, this small Vietnamese spider is regarded as a member of the genus in having scutate opisthosoma, weak femoral organ and the same arrangement of eyes. Because the structure of its male palpal organ is unique, the new species seems to be independent under the fragmental situation of our knowledge of zodariid fauna in Asia.

*Type specimen.* Male holotype from Dambri 800 m in elevation, Lam Dong Province, southern Vietnam, 1–VIII–2001, by sifting, S. Nomura leg. (IEBR and NSMT-Ar 5481).

*Description* (based on the male holotype; female unknown). Measurement: Body length 2.26 mm; prosoma length 1.13 mm, width 0.81 mm; opisthosoma length 0.96 mm, width 0.74 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: I 3.27 mm (0.88+0.29+0.81+0.75+0.54), II 2.72 mm (0.78+0.29+0.56+0.64+0.45), III 2.60 mm (0.73+0.30+0.53+0.68+0.36), IV 3.74 mm (1.00+0.30+0.85+1.10+0.49).

Prosoma. Carapace longer than wide (length/width 1.40), with a median furrow. Eyes: the anterior eye row straight and the posterior row procurved in dorsal view, AME>PLE>PME>ALE (8:6:5.5:5 in size), anterior eyes close to each other, PME–PME<PME–PLE (5:7), clypeus slightly longer than the anterior width of median ocular area (11:9), median ocular area longer than wide (length/width 1.22), wider in front than behind (anterior width/posterior width 1.13). Labium triangular, wider than long (length/width 1.13), sternum as long as wide, punctulate, its lateral margin with small, pointed extensions fitting in coxal concavities of legs. Chelicera with two teeth on promargin of fang



Figs. 19–24. *Akyttara odorocci* Ono, sp. nov., male holotype (NSMT-Ar 5481). — 19, Pro- and opisthosoma, dorsal view; 20, spinnerets, ventral view; 21, spinnerets, posterior view; 22, palpal organ, ventral view; 23, same, retrolateral view; 24, same, prolateral view. [Scales: Fig. 19, 0.5 mm; Figs. 20–24, 0.1 mm.]

furrow, and a denticle on retromargin, fang very short. All femora of legs with 1–0–0–0 dorsal spine, respectively, other segments spineless, tibiae, metatarsi and tarsi with long trichobothria, upper claws of legs with some teeth.

Male palp (Figs. 22–24): Retrolateral apophysis of tibia spiniform and pointed, ventral apophysis developed, wide and with spiniform tips, intermediate apophysis present (Fig. 23);

median apophysis on tegulum simple and spiniform (Fig. 22), embolus filiform and long, without embolic apophysis, distally curved (Fig. 24).

Opisthosoma oval, longer than wide (length/width 1.30), with a large sclerotized plate. All the spinnerets relatively short, especially the median and posterior ones very short and hardly visible (Figs. 20–21).

Coloration and markings (Fig. 19). Carapace



chestnut brown, chelicerae, maxillae, labium and sternum yellowish brown, palps and legs yellowish brown, except for femora and tibiae of legs reddish brown. Opisthosoma dorsally covered with a large plate yellowish brown, two pairs of large white spots and several white bars visible through the plate; the anterior half of venter covered with a yellow plate, the posterior half white, spinnerets light yellowish brown.

*Distribution.* Southern Vietnam (at present known only from the type locality).

*Remark.* The spider is named with a Japanese word "odoroki" meaning a wonder.

### References

- Hogg, H., 1922. Some spiders from South Annam. *Proc. Zool. Soc. London*, **1922**: 285–312.
- Jocqué, R., 1987. Descriptions of new genera and species of African Zodariinae with a revision of the genus *Heradida* (Araneae, Zodariidae). *Rev. Zool. Afr.*, **101**: 143–163.
- Jocqué, R., 1991. A generic revision of the spider family Zodariidae (Araneae). *Bull. Amer. Mus. nat. Hist.*, (201): 1–160.
- Ono, H., 2002. Occurrence of a heptatheline spider (Araneae, Liphistiidae) in Lam Dong Province, Vietnam. *Bull. Natn. Sci. Mus., Tokyo*, Ser. A, **28**: 119–122.
- Ono, H., 2003. Four new species of the family Zodariidae (Arachnida, Araneae) from Vietnam. *Bull. Natn. Sci. Mus., Tokyo*, Ser. A, **29**: 131–139.
- Ono, H., 2004. Three new species of the genus *Mallinella* (Araneae, Zodariidae) from Vietnam. *Bull. Natn. Sci. Mus., Tokyo*, Ser. A, **30**: 1–7.
- Simon, E., 1909. Étude sur les Arachnides du Tonkin (1<sup>ère</sup> partie). *Bull. Sci. Fr. Belg.*, **42**: 69–147.
- Strand, E., 1906. Diagnosen nordafrikanischer, hauptsächlich von Carlo Freiherr von Erlanger gesammelter Spinnen. *Zool. Anz.*, **30**: 604–637, 655–690.
- Thorell, T., 1887. Viaggio di L. Fea in Birmania e regioni vicini, II. Primo saggio sui ragni Birmani. *Ann. Mus. Civ. Stor. Nat., Genova*, Ser. 2, **5**: 5–417.